

Monitoring *Shoshonea pulvinata* in the Pryor and Beartooth Mountains, Carbon County, Montana 1999 Trend Report

Prepared for:

Bureau of Land Management
Billings Field Office
810 East Main
Billings, MT 59105-3395

Prepared by:

Bonnie Heidel

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Executive Summary

Shoshonea pulvinata represents a monotypic genus that is endemic to the Beartooth and Pryor mountain ranges of Carbon County, Montana and the Absaroka and Owl Creek ranges of Park and Fremont counties, Wyoming (Lesica and Shelly 1988, Fertig et al. 1994). The species is ranked as G2G3/S1 (globally imperiled or vulnerable, critically imperiled in the state) by the Montana Natural Heritage Program. It is recognized as sensitive by the Montana State Office of the Bureau of Land Management (USDI BLM 1996).

Demographic monitoring was repeated at 3 permanent belt transects in 1999 following an annual baseline monitoring in 1991-1993 to evaluate the stability of *Shoshonea pulvinata* numbers and its status as a sensitive plant species. In the original monitoring survey the species appeared to be stable, however, potential threats and impacts to existing populations were identified. In this study we determined changes in the numbers of individuals by size and reproductive characteristics within the sample plots, tracking

individual plants between years, in order to determine species' rates of growth, fecundity, recruitment and mortality. As a result, we found less difference between mortality and recruitment in the 1993-1999 interval as compared with differences between earlier annual monitoring intervals. This further documents the relative stability of the species in a range of settings, and its long-lived nature.

Growth rates were calculated to characterize trend. The Grove Creek transect had the highest growth rate values and is the sample set with the highest densities and highest proportion of small, possibly young plants. The Mystery Cave Ridge Transect had the lowest growth rate, and is the sample set with the lowest densities and high proportion of large, possibly old plants. Preliminary interpretations are offered for these opposite trends subject to testing in the course of management planning and assessment.

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